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# Applying Partial Least Squares Structural Equation Modeling For Finding Factors Influence On Online Food Order Decision in Vietnam

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## Abstract

*The proliferation of Internet access in recent times has facilitated the advancement of online food services by enabling customers to conveniently discover, assess, and employ such services. In contemporary times, it is inconceivable to envision a lifestyle devoid of the expediency offered by online food delivery services. The primary objective of this study was to investigate the factors that impact customer behavior in Can Tho, Vietnam with regards to online meal ordering. This quantitative research included questionnaires as a means of gathering data from the participants. This study used a sample size of 512 individuals residing in the city of Can Tho who had engaged in online food shopping. The model and its assumptions were assessed using statistical processing techniques such as Partial Least Squares Structural Equation Modeling (PLS-SEM) and Cronbach's alpha. The statistical research used SPSS and AMOS (version 24.0) for data analysis. The hypotheses 1, 2, 3, 8, 9, and 10 have been shown to be statistically significant, indicating that they may be accepted. As a result, several aspects, including the provision of high-quality information, the visual presentation of the website, the guarantee of privacy and security, the potential for time and cost efficiency, and the influence of social media, have had a favorable effect on the decision-making process regarding the purchase of meals via online platforms. Based on a correlation coefficient of 0.401, it can be inferred that social influence emerges as the most significant element. The second most significant factor is price saving, with a weight of 0.300, followed by the influence on information quality, which has a weight of 0.287. It is noteworthy to observe that the values pertaining to website design, privacy security, and time saving exhibit a clustering tendency within the range of 0.243 to 0.261. Conducting research on consumer behavior in the context of online buying is an essential first undertaking in the development of an effective online marketing strategy. One such approach is enhancing our understanding of the classification of consumers within the food product market. The anticipated outcomes of this research are poised to serve as a valuable resource for entrepreneurs operating in Tho city, especially those engaged in the provision of online food delivery services. These findings will enable entrepreneurs to enhance their ability to effectively cater to the demands and preferences of their client base.*

**Keywords:** PLS-SEM, online food order, delivery service, decision.

## 1. Introduction

An increasing number of individuals in Vietnam are opting for quick-service restaurants, delivery services, and online retailers as a means to fulfill their daily buying requirements.

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Customers are provided with the opportunity to use the interfaces of their mobile devices in order to avail themselves of a diverse range of services and carry out various transactions. It is advisable to use oneself of the services offered by the organization at one's own pace, rather than lingering in crowded areas. According to Ray et al. (2019), online food delivery services (OFDS) facilitate expedited meal ordering and delivery processes. These services enable clients to communicate with eating venues using their own websites and mobile applications. The availability of this capability will enhance the convenience of order placement and retrieval for customers. The proliferation of online food delivery services (OFDS) has contributed to an expansion in the range of menu selections available at restaurants, so offering consumers a greater selection. The introduction of online food delivery services (OFDS) has raised concerns among both restaurant owners and diners regarding food safety (Kim et al., 2008; Maimaiti et al., 2018). These concerns primarily revolve around issues such as food temperature, adherence to hygiene protocols by delivery personnel, and the potential for food tampering. Two distinct experiments conducted by researchers independently identified the aforementioned issues. The reliability and effectiveness of OFDS systems have been a subject of question among customers, similar to those using conventional meal delivery services (Kim et al., 2008). The challenges faced by users of Online Food Delivery Service (OFDS) systems are similar to those encountered by consumers using internet and mobile platforms. These challenges pertain to the design of user interfaces, the speed of communication, the protection of personal information, and the security of service interfaces, including payment processors (Yeh & Li, 2009). Nevertheless, the confidence of customers in the platform and their ability to effectively use technology in spite of the associated risks may serve to alleviate some issues (Kim et al., 2008; Hsiao et al., 2010). According to the study conducted by Kim et al. (2008), it was observed that consumers exhibit a greater inclination to engage in purchasing activities via an e-commerce website or platform when they possess a heightened degree of trust and confidence in the said medium. The scholarly literature has highlighted the importance of fostering customer loyalty and satisfaction (Liébana-Cabanillas et al., 2016; Aslam et al., 2020; Assaker et al., 2020) due to its pivotal role in securing the long-term success of service providers. Scholars have conducted investigations on the impact of several factors within the Online Food Delivery Service (OFDS) industry on consumers' inclination to engage in transactions. The issues under consideration include consumer characteristics (Gunden et al., 2020), technical aspects (Ray et al., 2019), moral duties in meal preparation, and consumer views of the COVID-19 pandemic (Hong et al., 2021). Numerous scholarly investigations have been undertaken to examine the purchase intentions associated with online food delivery services (OFDS). Notably, these research have placed special emphasis on key factors, such as client characteristics, as highlighted by Gunden et al. (2020). However, the scientific investigation of trust in the domain of Online Food Delivery Services (OFDS) has been limited.

Since 2018, there has been a significant increase in the availability of Online Food Delivery (OFD) services in Vietnam, with a specific focus on meeting the demands of specialized markets. These marketplaces mostly cater to a certain group of young urban professionals who have time limitations as a result of their busy schedules. The online meal delivery business, although now representing a very little fraction of around 0.2% in the worldwide market, is seeing notable growth and garnering substantial attention inside Vietnam. This may be attributed to the convenience and relatively secure nature of these services, which played a crucial role in safeguarding the Vietnamese population from the adverse effects of the Covid-19 epidemic. According to the statistical data presented by Statista in 2021, there is clear evidence of a significant increase in income produced by Online Food Delivery (OFD) services

in Vietnam. This surge amounted to a noteworthy increment of 95 million dollars in comparison to the previous year. As a result, the aggregate revenue reached a sum of \$302 million. According to a study conducted by Imarcgroup (2020), it is estimated that the market for outsourced finance and accounting services in Vietnam would see a compound annual growth rate (CAGR) of around 34% from 2021 to 2026. The market shares of online food delivery (OFD) platforms in Vietnam are seeing notable growth as a result of the improved convenience and transparency they provide to customers. To succeed in the current highly competitive market, companies providing on-demand delivery (ODD) services must emphasize the key characteristics that are of substantial value to their customers.

An upward trend in the use of food delivery services has been seen in May Tho City, perhaps ascribed to changes in customer behavior and environmental factors. The consumer behavior in Can Tho City is significantly influenced by digital technology, hence improving the overall quality of life for people. In the urban center of Vietnam situated in the Mekong Delta region, individuals today have access to a wide array of culinary choices including various food and beverage offerings. Residents of Can Tho City encounter several obstacles, such as the escalating occurrence of high tides, floods, heavy precipitation, the use of daylight saving time for professional objectives, and the amplification of severe weather phenomena. Therefore, the integration of technical innovations that enable the transportation of meals from diverse sources is in perfect harmony with the urban lifestyle of humans. Individuals are not obliged to engage in prolonged travels, tolerate extreme temperatures and enormous crowds at street food sellers, or wait in long queues at popular cafes or grocery shops. Residents in May Tho City who are now facing food insecurity have the option to simply fulfill their nutritional requirements by utilizing a smartphone to access a mobile application. By using this platform, individuals have the ability to start the process of ordering their preferred food and thereafter anticipate its arrival to their designated place of residence.

Based on the aforementioned environment, the primary aim of this research is to examine the factors that influence customers' buying choices, with a special emphasis on the availability of online meal ordering services within Can Tho City. This study employs a systematic approach to identify the independent factors that have a significant influence on customer satisfaction, based on a comprehensive review of existing literature. The criteria under consideration involve website quality, which encompasses information quality, website design, security privacy, and payment. Furthermore, service quality factors such as the quality of food, delivery efficiency, and promotional activities are taken into account. The independent variables include time-saving advantages, price-saving benefits, and social impact. The investigation's findings have the potential to assist the firm in building profitable digital companies that demonstrate development, considering the novelty of online meal delivery in Can Tho City

## **2. Methodology**

### **2.1 Sampling technique**

To develop research inquiries that align with a certain research framework, it is necessary to do a comprehensive examination of the existing scholarly literature in the respective topic. The primary target demographic of the study was the residents of Can Tho City, with the poll being designed to cater to their individual tastes and concerns. The incorporation of respondents who have prior experience with online food delivery (OFD) services enhances the survey's

overall dependability. This poll is being conducted concurrently with other ongoing investigations into consumer satisfaction with OFD's services. The dataset contains demographic variables, including age, gender, education level, marital status, and job status. The dataset includes comprehensive data on the participants' use patterns, as well as their preferences pertaining to the utilization of online meal delivery services. The degree of satisfaction with OFD's services is assessed using a five-point Likert scale. On a scale ranging from 1 to 5, a score of 1 indicates a severe disagreement, whilst a score of 5 represents a strong agreement. The objective of this scale is to ascertain the degree to which participants express agreement or disagreement with a certain statement or perspective. The total score of customers is determined by analyzing their replies to a query on their buying behavior, with a particular emphasis on their use of a meal delivery service. The use of Google Forms facilitated the development of a digital survey tool for the purpose of collecting data online. Initial engagement with potential participants and a solicitation for their participation in the survey might be initiated by electronic communication platforms, such as email or a dedicated website. Szwarc (2005) suggests that using this approach may facilitate the creation of a survey instrument that has both aesthetic appeal and user-friendliness, therefore motivating participants to promptly and effortlessly provide their comments. The primary data was collected via the distribution of questionnaires to a sample of 512 app users residing in Can Tho City, who had engaged in the practice of ordering meals online for delivery. The sample approach used in this investigation was non-probability sampling. The size of the sample is over five times more than what was indicated by the prior evidence.

## **2.2 Literature Review**

### **Online food delivery service**

Li et al. (2020) used the term "online food delivery" (OFD) to delineate the procedural framework whereby a customer's desired meal is prepared and thereafter sent to their location. The commencement of this procedure occurs when the customer initiates their purchase using an online platform. The rapid proliferation of OFDS has been facilitated by the incorporation of OFD platforms such as Uber Eats, DoorDash, and Grubhub. The restaurant is promptly notified when a customer submits an order using an online food delivery service platform, such as a smartphone application or website and promptly begins the preparation of the customer's meals. At this juncture, the final payment for the transaction is obtained from the consumer. Subsequently, a designated member of the delivery personnel gives the consumer the things they have ordered. By use of the application, customers were able to establish communication with the drivers responsible for the transportation of their merchandise and track the advancement of the delivery process. Customers who utilize OFDS are provided with several benefits, including the eradication of the necessity to queue, the avoidance of travel for pick-up purposes, the elimination of order misinterpretation commonly encountered with phone or restaurant orders, and the opportunity to avail discounts on daily specials. Customers that use OFDS are provided with many benefits, including the convenience of not having to travel in order to arrange for pick-up. A wide array of internet-based infrastructures is readily accessible with the specific purpose of facilitating the development of applications for meal delivery. The many online platforms facilitating food delivery may be classified into two distinct categories, namely "aggregators" and "new delivery" firms, based on their respective business models.

Aggregators represent a nascent kind of delivery service that is still in its early stages of development. The fundamental objective of the platform is to establish a connection between

customers and restaurants, with the responsibility of executing the actual delivery falling upon the establishments themselves. Nevertheless, the responsibility of managing the delivery service will lie with the restaurant, which will also bear the financial burden of compensating the aggregators for their services in facilitating the collection of customer orders. There are no additional fees associated with this service. The pricing of the delivery service does not include any undisclosed supplementary fees. The book in question has been credited to Hirschberg et al. (2016) as its writers. Hirschberg et al. (2016) argued that in order to bridge the disparity between restaurants lacking delivery services and their clientele, enterprises seeking to introduce delivery services should establish proprietary logistical networks, develop dedicated mobile applications, and implement their own delivery systems. It is likely that consumers will exhibit interest in doing a comparative analysis of pricing and menus as a means of future evaluation. Customers possess the capability to initiate orders from several restaurants using a unified platform, such as a website or mobile application. Customers are given the chance to place orders from a wide array of dining facilities, including both high-end restaurants and mobile food vendors that had not previously offered delivery services.

### **Consumer decision-making**

According to Gupta & Chopra (2020), the confirmation check is the last step in the process that a client goes through in order to make a choice. After the consumer has made up their mind about a certain item, the salesperson will next carry out a confirmation check in order to ensure that the item in question is genuine. The method referred to as "consumer decision-making" will be the subject of this conversation's central focus. The decision-making process of a consumer entails picking one valid choice out of many other possibilities in order to go on with an activity. It is possible to trace the origins of this relatively new profession of marketing all the way back to the social sciences, which include fields such as economics, anthropology, and psychology. The very first time that a customer makes a purchase is only the beginning of a much longer and more involved process that encompasses the whole act of shopping. In addition to this, it takes into account each and all possible circumstances in which a customer could interact with a product or service.

According to Kalinga & Thilini (2022), there are two factors that have the ability to affect a customer's propensity to acquire a product and, ultimately, their choice to make a purchase. One factor that should be taken into consideration is the amount to which the impact of the viewpoints held by other people has the potential to dampen the preferences of the one being influenced. According to Kalinga & Thilini (2022), this phenomenon may be linked to the high amount of desire that individuals possess to comply with the wishes of their peers, as well as the large degree of conviction they have in alternative possibilities. Additionally, this phenomenon may also be ascribed to the fact that people have a strong preference for alternative options. The presence or absence of unanticipated circumstances that might possibly have an effect on the final choice to make a purchase is the second consideration, and it refers to whether or not the decision will be affected. It is possible that some people may find themselves in a position where they are driven to participate in consumer transactions in order to lessen the impact of the probable repercussions of losing their jobs. As a result, one may claim that the preferences and purchases of customers are not reliable indications of the customers' future buying behavior. A customer's level of consumer confidence, their assessment of the amount of risk involved in making a purchase decision, and the perceived value of the opportunity being examined are all closely tied to the degree of risk aversion shown

by the customer when making a purchase option. Consumers often employ a methodical strategy that reduces the amount of risk they are exposed to and improves the amount of information they acquire via contacts with their peers in order to conduct an exhaustive investigation into the phenomena of choice avoidance and warranty-related worries. Marketers have carried out a substantial amount of study to investigate the factors that are responsible for clients experiencing sentiments of uneasiness. According to Kalinga & Thilini (2022), the firm increases the likelihood of making sales by lowering the level of risk that potential buyers identify with the act of purchasing the company's wares. The consumer decision-making process may be broken down into five separate stages, each of which is shown in the corresponding graphic depiction that has been supplied. When a customer decides to buy a product or service, their choice is often motivated by their perception of the intrinsic value or usefulness that the product or service delivers. Before making a purchase, consumers should engage in extensive research, thoughtfully consider a number of options, and eventually come to a choice that is based on accurate information.

### **Information quality**

In order to establish trust with an individual, it is necessary to provide them with education and information (Wang & Emurian, 2005; Flavian et al., 2006). Yoon (2002) conducted a study to examine the relationship between users' trust in a website and many characteristics, such as the number of items offered, the quality of information presented, and the company's market reputation. The study revealed a substantial correlation between the trustworthiness of a website and several features of the website. The concept of information quality pertains to the accessibility and utility of pertinent and up-to-date information. Additionally, it suggests that the information presented in the text is accurate. The concept of information quality in a technical system pertains to the precision and comprehensiveness of data pertaining to products, websites, and applications (Kim & Niehm, 2009). Insufficient product information inside the application may lead to heightened user confusion, perhaps resulting in a full cessation of its use. According to Rita et al. (2019), individuals place importance on material of superior quality while using an information system. Based on a study conducted by Van Noort et al. (2008), it was shown that users' views towards websites are influenced by certain features. Specifically, a good attitude is more probable when the material offered on the website is both relevant and well-organized. Hence, based on the study outcomes, scholars anticipate a positive association between the authenticity of data and clients' expressed inclination to use the Foodpanda application.

### **Website Design**

When developing a website, several aspects, including its appearance, balance, consistency, and emotional appeal, are taken into careful consideration throughout the design process. This environment demonstrates the use of a variety of design elements including color, shape, imagery, and typography (Garrett, 2002). Even though the amount of study that has been conducted on the relationship between trust and the visual attractiveness of websites is very small, a few studies have demonstrated that there is a significant association (Wang and Emurian, 2005). In addition, Karvonen (2001) suggested that there is a positive connection between trust and aesthetic appeal. On the other hand, the research that has been done so far lends credence to the idea that having a website that is both aesthetically appealing and easy to use helps to a positive experience for the visitor (Tarasewich, 2003). According to McKinney et al. (2002), it is said that regardless of the comprehensiveness of the information that is supplied on a website, if a client has issues in searching for and obtaining the essential

information, they are more likely to depart the site. This is the case even if the website has a large amount of material.

### **Privacy security**

The level of confidence a person has in a website influences the likelihood that they would carry out a financial transaction while using that website. According to Flavian et al. (2006), the security and protection of the customer's personal information is the major concern of consumers who make transactions online. According to Mukherjee & Nath (2007), consumers' attitudes toward the privacy and security precautions taken by websites have a positive impact on their propensity to participate in activities related to online shopping. This is because consumers feel more confident that their information would be protected when they shop online. According to the definition that was presented by Belanger et al. (2002), privacy may be regarded as the circumstance in which an individual's personal information is not disclosed without the individual's express assent. When it comes to doing business via the Internet, a significant number of Internet users continue to exhibit an understandable degree of reticence. This is mostly attributable to lingering concerns over the safety of their private information. Companies have the capacity to send customized messages to customers by making use of their Internet Protocol (IP) addresses and cookies. These messages highlight the significance of data mining and collection. These data may be used by organizations in order to improve the supply of individualized services, get a more in-depth grasp of their audience, and increase the overall level of pleasure experienced by their customers. According to research conducted by Belanger et al. (2002), customers have a greater feeling of safety when doing business with companies that provide several verification methods on their own websites.

### **Payment system**

Chen & Chang (2003) have extensively documented the prevailing consensus that consumers possess a restricted capacity to tolerate critiques from automated systems. According to a study done by Dellaert & Kahn (1999), individuals who engage with the internet have an average attention span of about eight seconds before redirecting their focus elsewhere. Weinberg (2000) asserts that the efficacy of a website is contingent upon its visual appeal, user-friendliness, and prompt loading time. Therefore, it is essential for a respectable website to enhance the efficiency with which it handles client transactions. Should this situation occur, it is possible that clients may exhibit a reluctance to avail themselves of the payment option offered by the website. When evaluating a company's website, it is important to analyze the extent to which it exhibits characteristics like those of a salesman, based on certain criteria. According to previous research conducted by Crosby et al. (1990); Doney & Cannon (1997); Friedman et al. (2000), customers are more inclined to place their faith in a salesperson and the associated business when they perceive the salesperson to possess both competence and personality. Customers are more inclined to place trust in a salesperson and the associated organization when they believe the salesperson to possess expertise and exhibit agreeable qualities. The degree of trust that customers have in online transactions is impacted by various factors, such as the accuracy of the displayed information, the robustness of security measures, the availability of multiple payment options, and the ease of using these methods.

### **Food quality**

As stated by Mahendran & Indrakant (2013), the whole of the human population has an inherent and fundamental inclination towards sustenance as a means of guaranteeing their

ongoing survival. The assessment of a meal's quality encompasses a range of factors, including its visual appeal, flavor, menu alternatives, freshness, and safety for consumption. According to a study conducted by Rozekhi et al. (2016), it is well-recognized that the provision of high-quality meals plays a pivotal role in satisfying consumers and fostering their inclination to revisit. In the context of evaluating food quality, the sense of taste is commonly acknowledged as the most prominent of the five sensory modalities. The research done by Kannan (2019) revealed that the quality of the meal significantly impacted the level of satisfaction experienced by customers, as well as their subsequent behavioral patterns. According to the study conducted by Zhong & Moon (2020), a body of literature has shown that the provision of high-quality meals to customers contributes to their overall happiness. The assessment of food quality by customers mostly revolves around its freshness, flavor, and presentation, as shown by the findings of Petrescu et al. (2020) in their research study. Savov & Kouzmanov (2009) conducted a study that revealed that customers assess the quality of food based on many variables, including price, flavor, and presentation. Namkung & Jang (2007) propose that several elements play a role in determining the overall quality of food. Several elements might influence consumer preferences in the context of food selection including taste, freshness, diversity, availability of healthier alternatives, and temperature. Based on the research done by Annaraud & Berezina (2020), it seems that the quality of food significantly impacts customer satisfaction within the food service business. Furthermore, as stated by Peri (2006), it is essential to not only meet the demands of clients but also exceed their expectations.

### **Delivery quality**

In the realm of electronic commerce, the punctual transportation of goods has significant importance in guaranteeing the contentment of consumers and the sustained operation of enterprises. According to the findings of Roy Dholakia & Zhao (2010), the relationship between the attributes of online stores and consumer satisfaction is significantly influenced by the element of time. Irrespective of the condition of the roadways or the prevailing weather conditions, a delay in the delivery process beyond the typical time, such as an hour, would adversely affect the customer's satisfaction level. Based on the research done by Liu et al. (2008), it was observed that a significant proportion of Chinese customers, around 25%, expressed dissatisfaction with the service given to them due to issues such as delayed deliveries or inaccurate product shipments. The results of the China Internet Network Information Centre's (CNNIC) 2004 Online Shopping Report align with this result. Furthermore, it has been shown that there exists a substantial correlation between timely delivery and satisfied customers. Roy Dholakia & Zhao (2010) believe that several variables, including timely delivery and other elements of order fulfillment, significantly influence customer evaluations and satisfaction levels. In the context of non-store commerce, such as online sales, where there exists a temporal gap between the initiation of an order and its subsequent reception, the timely delivery of items becomes of paramount significance (Roy Dholakia & Zhao, 2010). Online sales serve as a notable illustration of this phenomenon. Consequently, within the realm of online meal ordering, the punctual delivery of orders plays a crucial role in guaranteeing consumer pleasure and fostering customer loyalty.

### **Promotion and customer service**

Shaddy & Lee (2020) emphasize the immediate impact that a discount or promotion has on consumers' buying choices. During promotional seasons, such as sales and discounts, it is observed that consumers have a higher propensity to engage in product experimentation, increase their shopping frequency, and maybe engage in overpayment. Discounts have been



identified by Neha & Manoj (2013) as a noteworthy and influential element of advertising. The study done by Pi & Huang (2011) reveals that the implementation of promotions might potentially enhance consumers' pleasure. Additionally, promotions have the capacity to foster trust, cultivate loyalty, and encourage repeat patronage among customers. The study done by Alipour et al. (2018) reveals that promotional activities have a significant influence on customer satisfaction levels. Based on a study done by Nakarmi (2018), it was shown that customers express a considerable degree of happiness when they are exposed to exclusive offers, such as price reductions, discounts, complimentary samples, and "buy one get one free" promotions. Implementing effective promotional methods that persuade individuals to make purchases may contribute to the growth of company operations and generate more income. According to Suleyman (2010), a significant association was found between the level of service quality perceived by online customers and their overall satisfaction with the transaction. The efficiency of customer query handling, return processing, and replacement dispatch is a significant cause of dissatisfaction among consumers. The order of priority between service quality and customer happiness remains a subject of ongoing discussion. However, our findings align with previous research conducted by Selnes (1998); Wiertz et al. (2004).

### **Time-saving**

The time-saving benefits of purchasing online make it the favored method. Chiu et al. (2014) asserted that customers value the ease associated with online purchasing due to its potential to save time and effort, along with additional advantages such as reduced waiting times at the point of sale and extended shop operating hours. Consumers also place importance on the convenience of internet buying due to its potential cost-saving benefits. An additional post-use utility component is the amount of time saved by the user, which, according to Eriksson & Nilsson (2007), is greatly affected by the simplicity with which the user may utilize online banking and payment systems. Another factor to consider in the evaluation of post-use value is the monetary savings realized by the user. Based on the findings of these assessments, it is justified to propose the following hypotheses, since they indicate a correlation between an individual's attitude and their inclination to reduce time wastage and enhance convenience.

### **Price-saving**

Johansson & Erickson (1985) define the word "price" as the monetary amount that buyers must exchange in order to get the advantages provided by a particular product or service. Smith (2014) posits that contemporary market economies exhibit a dynamic interplay between supply and demand, whereby price formation is both influenced by and serves to maintain equilibrium. In the study conducted by Furnols et al. (2011), the term "pricing" is defined as the financial worth at which buyers and sellers engage in transactions involving the exchange of goods and services. The cost of the merchandise effectively reflects the substantial financial investment made by the purchaser. Kim et al. (2012) argue that the pricing of a product or service significantly impacts consumers' views of its value and subsequently affects their level of satisfaction with the offering. Furthermore, the pricing of a product or service may significantly influence the level of happiness experienced by users. Customers possess a fair and accurate anticipation of the cost of items and services they want to get. The research done by East et al. (2013) revealed that buyers attach significant significance to the evaluation of product cost prior to finalizing a purchase decision. Consumers need assurance about the affordability, accessibility, and competitiveness of their purchases in relation to alternative market offerings. Based on the research conducted by Bodea & Ferguson (2012), a considerable portion of

consumers hold the belief that they possess a legitimate claim to justifiable pricing, and the level of their contentment with a purchase is positively correlated with their perception of the transaction's fairness. Nevertheless, the study results suggest that consumers exhibit lower levels of satisfaction with their purchases when they believe the firm to be excessively benefiting at their detriment, even if the advantages of the product or service exceed its cost. According to the study conducted by Charoensukmongkol & Tarsakoo (2019), a key benefit of online purchasing is the potential for customers to expect lower total pricing. Buyers may expect to get this as a notable advantage. If a firm decides to provide its products and services via an online platform instead of a traditional brick-and-mortar shop, it is likely to achieve significant cost reductions in several aspects, including rental expenses, staff wages, and other overhead costs. Consequently, the expenditures related to doing online business sometimes exhibit a substantial reduction compared to the costs involved with retailing the same merchandise in a traditional brick-and-mortar establishment. Furthermore, buyers are provided with an extensive array of products at costs that are equivalent to those supplied by other shops due to the ease of doing online transactions. There exists a potential for clients to encounter greater availability of enticing offers and promotions while engaging in online purchases. Further cost reductions may be achieved via the use of certain payment methods. As a result, the extent of price reductions significantly influences consumers' inclination to engage in online purchasing.

### **Social influence**

According to Ajzen & Fishbein (1977), the phenomenon of peer pressure may be characterized as the belief that one's actions will be negatively evaluated by peers, family, and acquaintances. Schepers & Wetzels (2007) propose that individuals' decision-making processes might be significantly influenced by their preconceived notions about the use of a certain technological device. Studies conducted by researchers from several disciplines have been undertaken to examine the role of social factors on subsequent efforts, building upon previously established rationale. Previous studies done by Bonn et al. (2016), Choi and Chung (2012), and Shen et al. (2006) have shown that peer pressure may enhance the likelihood of a service fulfilling its promised benefits. Venkatesh & Davis (2000) suggest that consumers form their own perceptions of the value of a product or service by incorporating the viewpoints of their reference groups. Reference groups may include individuals such as loved ones, friends, and coworkers, among other acquaintances, who serve as influential entities for customers. Previous studies undertaken by Ajzen et al. (2009); De Cannière et al. (2010); Fishbein & Ajzen (2011) have shown the importance of this information in accurately predicting consumers' actual purchase behavior.

Several scholarly investigations on consumer behavior within the domain of technology have consistently shown that peer influence plays a substantial role in influencing an individual's decision to engage in a purchase. This particular observation has been derived from the aforementioned investigations. This observed tendency has been seen in several situations, such as engaging in mobile banking transactions (Bhatiasevi, 2016), purchasing airline tickets using online platforms (Escobar-Rodríguez & Carvajal-Trujillo, 2014), and actively participating in weight loss programs (Okumus et al., 2018). In their study, Beldad & Hegner (2018) performed research with the aim of identifying the determinants that motivate users to sustain their usage of fitness apps. The study results suggest that the degree to which a person is impacted by their peers has a substantial role in this particular field. Multiple research studies on OFDS have shown that users are inclined to utilize these services based on

recommendations from their close social networks (Roh & Park, 2019; Al Amin et al., 2021; Troise et al., 2021). Several studies have provided evidence indicating that customers are motivated to use a certain service based on recommendations from their immediate social circles.

### **2.3 Research hypotheses**

**H1:** *The positive relationship between information quality and online food order decision*

**H2:** *The positive relationship between website design and online food order decision*

**H3:** *The positive relationship between privacy security and online food order decision*

**H4:** *The positive relationship between payment system and online food order decision*

**H5:** *The positive relationship between food quality and online food order decision*

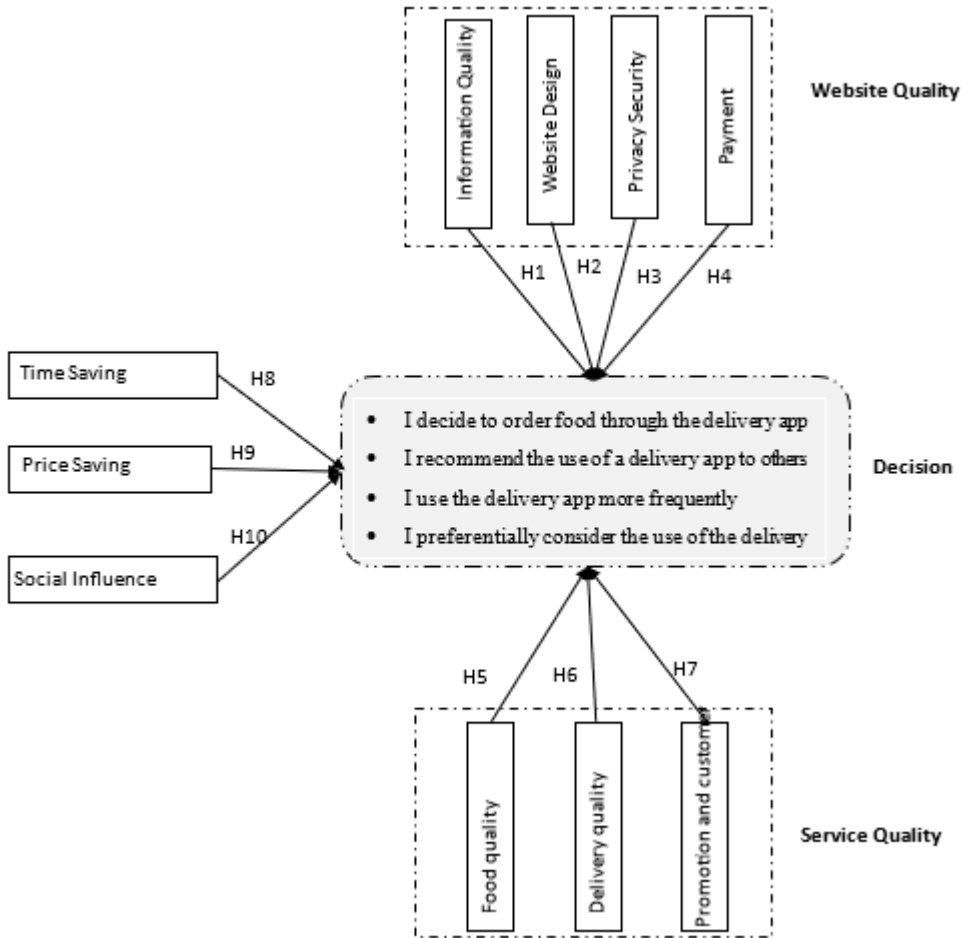
**H6:** *The positive relationship between delivery quality and online food order decision*

**H7:** *The positive relationship between promotion and customer service and online food order decision*

**H8:** *The positive relationship between time-saving and online food order decision*

**H9:** *The positive relationship between price saving and online food order decision*

**H10:** *The positive relationship between social influence and online food order decision*



**Figure 1:** Research hypotheses

### 2.3 Data analysis

After the completion of data collection, the acquired data was inputted into statistical software programs such as PLS-SEM and SPSS 24. Partial least squares structural equation modeling (PLS-SEM) is a widely used statistical approach used to examine the relationships and connections between various elements. The use of this particular approach is strongly advocated for the purpose of forecasting and assessing explanatory factors, as it effectively captures a significant degree of variability, hence enhancing the accuracy of result predictions.

Partial Least Squares Structural Equation Modeling (PLS-SEM) is often regarded as a very effective approach for predicting outcomes, particularly when considering a diverse range of variables. It is commonly suggested for both forecasting purposes and evaluating explanatory factors. Partial Least Squares Structural Equation Modeling (PLS-SEM) is a widely used statistical technique in the field of data analysis, often employed to examine relationships among various variables (Hair et al., 2020). Partial Least Squares Structural Equation Modeling (PLS-SEM) enables the attainment of meaningful outcomes with a reduced sample size in comparison to other methodologies. Academics use this kind of data collection to evaluate

complex route models (Hair & Sarstedt, 2021). According to a recent study conducted by Mustafa et al. (2022), the increasing popularity of the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach in the field of management science may be attributed to its perceived benefits. This suggests that the optimal approach would include using Partial Least Squares Structural Equation Modeling (PLS-SEM). The proposed model requires a two-stage analysis in order to account for the presence of non-linear interactions among variables. The accuracy and dependability of a route modeling technique based on Partial Least Squares (PLS) is assessed to provide precise assessments of development projects. Prior to constructing an internal model or building connections among latent components, it is essential to evaluate the convergent validity of a structural model.

### 3. Results and discussion

The study used descriptive statistics to test the normality of univariate data. These statistics include mean, standard deviation, skewness and kurtosis. The acceptable range of skewness and kurtosis is +2.5 (Black & Babin, 2019). Table 1 presents the consolidated results for descriptive statistics. The calculated results in the table above show that Time-Saving (TS) (Mean= 3.80, S.D= 1.04) has the highest skewness value (sk= 1.229). In addition, the highest kurtosis value (k=0.922) is for Time-Saving (TS) (Mean= 3.80, S.D= 0.932) while the lowest kurtosis value (k=0.217) is for Social Influence (SI) (Mean=3.57, S.D=1.036). Since these results indicate that the skewness and kurtosis values for all aspects are not greater than +2.5, the normality of univariate data was established.

**Table 1: Descriptive statistics main factors**

Construct	Mean	Std. Dev	Skewness	Kurtosis
Time-Saving (TS)	3.8060	1.04607	-1.229	0.922
Social Influence (SI)	3.5788	1.03656	-0.922	0.217
Price Saving (PS)	3.6328	1.03816	-0.821	0.226
Service Quality (SQ)	3.6899	0.70756	-0.629	0.631
Website Quality (WQ)	3.7004	0.65026	-0.514	0.866

**Source:** Field Survey Data, 2023

To ensure the internal consistency of data, reliability analysis was conducted. The acceptable reliability value is at least 0.70 or higher (Agha et al., 2021; Haque et al., 2021). Table 2 shows the summarized results for reliability analysis, where the highest reliability value (Cronbach Alpha = 0.913) is for Information Quality, while the lowest reliability value (Cronbach Alpha = 0.778) is for Price Saving. Therefore, all reliability values are greater than 0.70, so all adapted aspects are reliable for this study.

**Table 2: Reliability analysis (Cronbach Alpha)**

Construct	Cronbach $\alpha$
Information Quality (IQ)	0.913
Website Design (WD)	0.895
Security Privacy (SP)	0.787
Payment (P)	0.808
Food Quality (FQ)	0.836
Delivery Quality (DQ)	0.849

Promotion and Customer Service (PC)	0.879
Time-Saving (TS)	0.873
Price Saving (PS)	0.778
Social Influence (SI)	0.853
Decision Use (DU)	0.865

**Source:** Field Survey Data, 2023

Construct validity is a way of assessing how well a test measures a concept that is not directly observable or quantifiable (Table 3). For example, if a researcher wants to measure emotional intelligence, they need to use a measurement scale (construct) that can capture this concept accurately. To evaluate the accuracy of the measurement scale, construct validity can be examined through two types of validity: convergent and discriminant. Convergent validity refers to the extent to which the items that represent the construct are related to each other. Convergent validity can be assessed by three criteria: factor loading, composite reliability and AVEs. Factor loading is the correlation between an item and its construct, and it should be higher than 0.40 (Hsieh & Hiang, 2004; Hashmi et al., 2021). Composite reliability is the consistency of the items in measuring the construct, and it should be higher than 0.70 (Hashmi et al., 2021; Khan et al., 2022b). AVEs is the average variance extracted by the construct from its items, and it should be higher than 0.50 (Fornell & Larcker, 1981; Khan et al., 2022c). Table X presents the summarized outcomes for the three criteria mentioned above. The summarized results show that the highest factor loading value is Time-Saving (TS) (0.913) and the lowest factor loading value is Security Privacy (SP) (0.802), which means that no factor loading value is less than 0.60. Secondly, the minimum value of composite reliability is (0.773) which means that all aspects meet the CR standard. Finally, the AVEs for all aspects are also not less than 0.50, indicating that all aspects meet the acceptable standard of AVE. Since the outcomes meet all three criteria, convergent validity was established.

**Table 3:** Convergent validity analysis

Construct	Item	Factor Loading	AVE	Composite reliability (CR)
Information Quality (IQ)	IQ1	0.821	0.697	0.918
	IQ2	0.833		
	IQ3	0.834		
	IQ4	0.854		
	IQ5	0.836		
	IQ6	0.830		
Website Design (WD)	WD1	0.850	0.759	0.902
	WD2	0.871		
	WD3	0.879		
	WD4	0.885		
Security Privacy (SP)	SP1	0.847	0.701	0.792
	SP2	0.862		
	SP3	0.802		
Payment (P)	P1	0.887	0.719	0.845
	P2	0.822		
	P3	0.833		
Food Quality (FQ)	FQ1	0.834	0.752	0.852

	FQ2	0.875		
	FQ4	0.891		
Delivery Quality (DQ)	DQ1	0.899	0.766	0.866
	DQ2	0.874		
	DQ3	0.853		
Promotion and Customer Service (PC)	PC1	0.854	0.733	0.884
	PC2	0.877		
	PC3	0.865		
	PC4	0.828		
Time-Saving (TS)	TS1	0.873	0.796	0.898
	TS2	0.913		
	TS3	0.890		
Price Saving (PS)	PS2	0.897	0.818	0.782
	PS3	0.913		
Social Influence (SI)	SI1	0.884	0.773	0.853
	SI2	0.878		
	SI3	0.875		
Decision Use (DU)	DU1	0.833	0.711	0.867
	DU2	0.865		
	DU3	0.828		
	DU4	0.847		

**Source:** Field Survey Data, 2023

In a research study, a questionnaire may include one or more concepts, so the researcher needs to examine the distinction between these concepts. The distinction indicates that for the validity of these concepts, the questions of one concept should not be highly correlated with the questions of another concept. This type of validity is called “Discriminant Validity”. In this study, divergent validity was tested by the method explained (Fornell & Larcker, 1981; Khan et al., 2021). According to this method, the square root of AVEs should be higher than the correlation between each pair of concepts. The consolidated results are presented in Table 4. The diagonal values show the square root of AVE. The results in table 4 show that the smallest diagonal value (square root of AVE) is (0.835). In contrast, the largest correlation value is ( $r=0.401$ ), which is not greater than the smallest diagonal value, so all diagonal values are greater than the correlation between each pair of variables. Therefore, all adapted concepts are discriminant for this study and also measure distinct concepts.

**Table 4:** Discriminant validity analysis

Construct	T_DQ	T_DU	T_FQ	T_IQ	T_P	T_PC	T_PS	T_SI	T_SP	T_TS
DQ	0.875									
DU	0.199	0.843								
FQ	0.276	0.222	0.867							
IQ	0.314	0.287	0.328	0.835						
P	0.320	0.196	0.227	0.283	0.848					
PC	0.316	0.224	0.220	0.306	0.252	0.856				
PS	0.214	0.300	0.201	0.265	0.142	0.277	0.905			
SI	0.180	0.401	0.245	0.156	0.173	0.203	0.383	0.879		

SP	0.282	0.256	0.191	0.300	0.307	0.208	0.267	0.170	0.837
TS	0.259	0.261	0.246	0.223	0.163	0.281	0.193	0.254	0.096 0.892

Source: Field Survey Data, 2023

To evaluate Decision Use, the study built and tested a model with 10 independent variables, including: Information Quality, Website Design, Privacy Confidentiality, Payment, Food quality, Delivery quality, Advertising and customer service, Time saving, Price saving, Social Influence. The only dependent variable of the model is Decision Use. The results and statistical significance of the overall model are presented in Table 5.

Table 5: Path analysis (PLS-SEM)

Path	Estimate $\beta$	T statistics	P-Value	Hypothesis	Hypothesis Result
Information Quality → DU	0.287	2.160	0.031	H1	Accepted
Website Design → DU	0.243	1.855	0.064	H2	Accepted
Privacy Security → DU	0.256	2.434	0.015	H3	Accepted
Payment Systems → DU	0.196	0.523	0.601	H4	Reject
Food Quality → DU	0.222	0.329	0.743	H5	Reject
Delivery Quality → DU	0.199	0.371	0.711	H6	Reject
Promotion and Customer Service → DU	0.224	0.619	0.536	H7	Reject
Time Saving → DU	0.261	2.139	0.033	H8	Accepted
Price Saving → DU	0.300	1.750	0.080	H9	Accepted
Social Influence → DU	0.401	5.866	0.000	H10	Accepted
R-square			0.000		0.361
R-square adjusted					0.346

Source: Field Survey Data, 2023

The hypotheses in this inquiry were tested using the T-statistics and path coefficient values obtained from the bootstrapping technique for the structural model. According to Beneke and Blampied (2012), the robustness of a model's connections may be assessed by using T-statistics to test for statistical significance between model variables and path coefficients. Table 5 displays the T-statistics and standard deviations of the route coefficients, while Figure 2 presents the same information in graphical form. According to Chin (1998), a T-statistic over 1.96 at an significance level of 5% shows the presence of a statistically significant relationship. The objective of this study is to ascertain the factors that have facilitated the consistent growth of the meal delivery industry in recent years. This study especially examines the analysis of information quality, website design, privacy security, payment systems, food quality, delivery quality, promotion and customer service, time saving, price saving, and social influence with online food order decision what factors can continue driving the development of the food delivery market. The acceptance of the following five hypotheses is often predicated on the empirical evidence derived from research studies.

Hypothesis H1 suggests a favorable correlation between the quality of information and the online purchase of meals. The findings of this investigation provide support to the aforementioned idea. The findings from Table 5 and Figure 2 indicate that the presence of sound had a positive influence on users' likelihood to engage in online food purchases. Additionally, the study revealed that sound had a crucial role in predicting the quality of



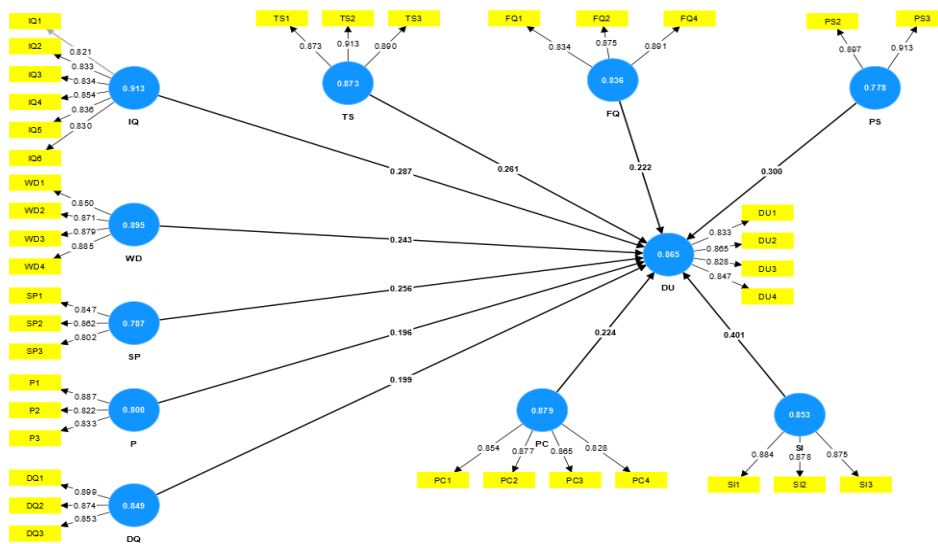
information, as shown by a T-statistic of 2.160. This discovery implies that individuals tend to assign more importance to information that has superior auditory characteristics when making decisions. The finding is supported by the empirical studies conducted by both Jeong et al. (2003) and Muylle et al. (2004). The result of Rita et al. (2019) aligns with the findings reported by Kim and Niehm (2009). The quality of information may be assessed based on its capacity to adapt and provide valuable facts in accordance with its surroundings Zhao and Bacaó (2020). Customers have the potential to optimize their use of the information that is made available to them. It is important for program managers to recognize that the presence of negative feedback signifies that consumers see more value in alternative goods and services.

The obtained T-statistic and its corresponding p-value provide compelling support for the acceptance of hypothesis H2. The findings of this investigation provide support to the aforementioned idea. The findings from Table 5 and Figure 2 demonstrate that the inclusion of music in website design has a favorable impact, specifically in relation to the likelihood of customers making online food purchases ( $\beta = 0.230$ ). The calculated T-statistic for this connection was 1.855, indicating a statistically significant result. This discovery implies that the integration of superior music inside website design yields advantages, namely in terms of user experience and decision-making. The studies conducted by Muylle et al. (2004), Jeong et al. (2003), and Kim and Stoel (2004) all provide results that align with the aforementioned conclusions. The environment under consideration encompasses several design components, including color, shape, imagery, and typography (Garrett, 2002). Although there exists a substantial body of data establishing a correlation between trust and visual appeal, the current state of research on this topic remains limited (Wang & Emurian, 2005). Furthermore, Karvonen (2001) put up a proposition suggesting a causal relationship between beauty and trustworthiness. The existing research, however, provides evidence in favor of the proposition that a website that combines aesthetic attractiveness and ease of use adds to a positive user experience (Tarasewich, 2003).

The hypothesis testing findings, as shown in Table 5 and Figure 2, indicate that H3 has been accepted, with a  $\beta$  value of 0.256. The T-statistic value for hypothesis H3 is 2.434, suggesting that there is statistical significance associated with this hypothesis. Put otherwise, the user's ability to exercise autonomy with regards to security and secrecy yields advantageous outcomes. Numerous scholarly investigations have examined the correlation between clients' privacy demands and their inclination to use mobile meal ordering services. This finding is derived from an examination of publicly available research papers. Consumers who possess confidence in the reliability and security of an online platform are more inclined to engage in real purchasing behavior during their browsing sessions. According to the study conducted by Flavian et al. (2006), a primary concern of consumers while engaging in online transactions is to the security of their personal information. According to Mukherjee and Nath (2007), individuals are more inclined to participate in electronic commerce when they possess a positive perception of the security and privacy measures used by online platforms. The probability that customers will have an increased sense of confidence about the security of their personal data while engaging in online transactions. The existing body of research about the security and privacy hazards associated with e-service providers has been substantially enhanced by the contributions of notable scholars, including Liao and Cheung (2002) and Poon (2007).

The analytical results indicate that there is a statistically significant positive relationship between time-saving orientation and online meal ordering preference, with a coefficient  $\beta$  of 0.261 (T-

statistic 2.139). Given the circumstances, it is plausible to consider accepting the eighth hypothesis (H8). The correlation between customers' inclination to purchase their meals online and the ease of the service, as assessed by aspects such as the flexibility to buy at their preferred time, shows a positive relationship. This research presents evidence indicating that consumers have a more positive perception of online food delivery (OFD) when the service is accompanied with time-saving features. According to the study conducted by Chiu et al. (2014), consumers see internet shopping as a convenient option due to its potential to save time and energy. Additional advantages include reduced waiting times at the point of sale and extended operating hours of the shop. In addition to the potential economic advantages, customers strongly appreciate the convenience of online buying. To mitigate the adverse impact on customers, it is essential to provide timely delivery of items and services upon their placement of orders. When individuals find themselves in a dynamic environment, they tend to exhibit a heightened inclination to refrain from allocating their time and financial resources towards pursuits that lack significance or purpose. Customers are afforded a significant degree of flexibility in terms of personalization while employing services that are consistently available (Suryadev & Mahik, 2018).



**Figure 2:** PLS-SEM path model

Based on the obtained T-statistic of 1.750 and the corresponding  $\beta$  of 0.300, the evidence from the data supports the hypothesis H9. This study examines the impact of customers' price expectations on their perceptions of many dimensions within the growing meal delivery industry. The poll also examined the level of client satisfaction about their decision to employ online food delivery (OFD) services. The primary finding suggests that the quality of food has the greatest advantageous impact on customer satisfaction. The results of previous researches, such as Kannan (2019), Mohaydin et al. (2017), Pfeifer et al. (2014), Rozekhi et al. (2016), and Zhong (2020), shown a high degree of similarity. Susanti (2019) posits that the pricing of a product or service plays a crucial role in influencing consumer satisfaction. The phenomenon under consideration may be attributed to customers' assessment of the value of products and services in relation to their willingness to allocate financial resources. Hence, in the event that consumers see a brand's pricing as too exorbitant, they may choose to discontinue their

purchases from this brand altogether or transition to a competing brand. The assessment of customer happiness and the promotion of brand loyalty are contingent upon the evaluation of pricing fairness, as shown by the study conducted by Rothenberger (2015).

This research has the potential to address gaps in information about the factors that impact user decision-making and contribute substantially to our comprehension of the significance of social influence within the online food service industry. This discovery aligns with the null hypothesis, which posits that there is no significant impact of the social intervention on the dependent variable (H10). This finding underscores the significance of reference groups' perspectives on online food delivery services (OFDS) in shaping their usage, aligning with prior research conducted by Al Amin et al. (2021), Bhatiasevi (2016), Escobar-Rodriguez and Carvajal-Trujillo (2014), Lee et al. (2019), Okumus et al. (2018), Troise et al. (2020), and Zhao and Bacao (2020). According to the research conducted by Bonn et al. (2016), it was shown that consumers tend to have a better comprehension of the advantages associated with online wine purchases when they are exposed to individuals of elevated social standing engaging in similar transactions. In the context of online food delivery services (OFDS), where orders are often made using mobile applications, it is essential to possess a comprehensive understanding of the fundamental aspects that impact customers' ultimate choices. The relevance of individual, societal, and psychological aspects in influencing consumer behavior has been shown in research conducted by Utami and Yuliawati as well as Al Shishani (2020). The views of an individual's social network have a significant effect on their decision-making process when it comes to purchasing a purchase. This encompasses individuals who are both intimate friends and casual acquaintances. The findings of the study indicate that social influence (SI) has a substantial impact on individuals' inclination to engage in online grocery shopping. Multiple studies (Al Amin et al., 2021; Roh & Park, 2019; Troise et al., 2020) have shown the significance of social influence in the decision-making process pertaining to online meal purchases. It is essential to emphasize, nevertheless, that this impact is not the primary issue being examined. The findings of the research indicate that the meal ordering choices of the study participants were significantly impacted by their social settings. Based on this theoretical framework, it is posited that individuals prioritize the viewpoints of their existing social connections as a significant factor in determining the credibility of online platforms for ordering meals.

#### **4. Conclusion**

The objective of this study was to ascertain the key factors that have the most effect on consumers' ultimate choices in the context of online meal ordering. Existing research indicates that in order to augment the proportion of individuals opting for online meal purchases, enterprises operating in this sector should prioritize factors such as the quality of information provided, website design, privacy and security measures, time and cost efficiency, as well as the social implications associated with their services. If a service-oriented business consistently provides superior services and reliable customer support, it has the potential to establish a consistent and recurring revenue stream from contented clientele. The findings of the empirical research provide support for the assertion that several elements, such as the quality of information, the design of the website, the security of privacy, the possibility for time and cost savings, and the social influence related to the transaction, have a favorable influence on users' choices to make online meal purchases.

First and foremost, when engaging in internet shopping, the tangible aspect of physically holding the purchased item is absent. In the context of online purchasing, customers have a

distinct limitation in their sensory experience as they are deprived of the ability to physically perceive the taste, touch, smell, sight, or sound of the items, which stands in stark contrast to the normal brick-and-mortar retail locations. In contrast, shoppers assess the quality of a product by relying on its visual representation and the accompanying textual description shown on the website. Hence, it is crucial to provide precise and comprehensible information to enhance the customer's trust level. Furthermore, it is vital to provide thorough information accompanied by sound reasoning, including both the scope and intensity of the services offered. Furthermore, it is essential to provide virtual demonstrations of products or services to enable consumers to effectively picture the offering.

In addition, the importance of content relevance is emphasized after the recognition of the crucial role of exceptional web page design in creating a favorable first impression on visitors. The propensity of visitors to engage in purchasing activities and their level of trust in your organization are both augmented when they experience a sense of comfort throughout their interactions with your website. The establishment of a secure digital platform is vital for online food suppliers in order to ensure the integrity of the payment method used throughout the whole of the purchase process. Ensuring the provision of effective time and financial management solutions on their websites is of utmost importance for firms engaged in online meal delivery services. The inclusion of these several elements will lead to an enhanced level of confidence among clients, hence yielding advantageous outcomes for service providers. Consequently, contented customers have a greater propensity to engage in product purchase, repurchase, and engage in positive word-of-mouth communication on its exceptional qualities.

Lastly, the robust positive association shown between SI and DU suggests that OFDS marketers should emphasize word-of-mouth promotion above other forms of media. Online customer evaluations are regarded as the second most dependable method for disseminating information and conveying brand message. It is recommended that marketers of online food delivery services (OFDS) create a unique hashtag for their service platforms as a means to stimulate the creation of user-generated content. Furthermore, an effective strategy to incentivize clients to submit reviews and promote them on social media platforms might include offering discounts or complimentary items. The ability to see content shared by friends and family has the potential to enhance user visibility and generate interest among prospective consumers. Consequently, this particular attribute has the potential to attract a larger client base.

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